Munich Re *Risk Score* ®

An Asia-Pacific approach, which further stratifies mortality risk, using non-traditional yet easily accessible underwriting variables

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Image: Maskot / Getty Images

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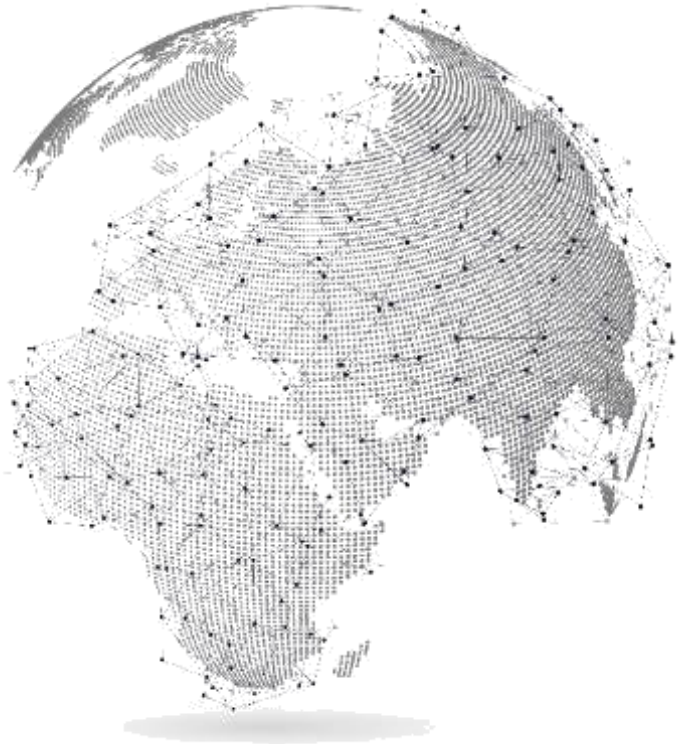

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Variable consideration

Guidelines for using variables in further risk stratification

Starting point

Expected impact of ‘new’ variables on long term mortality or morbidity is estimated from research papers and medical literature reviews performed by the medical team.

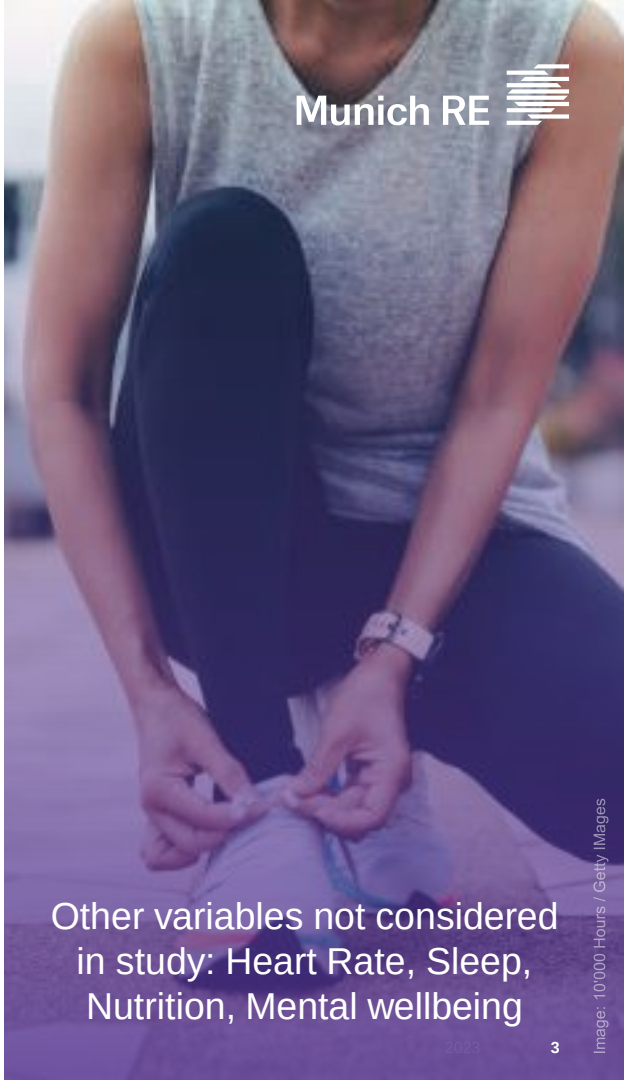
Guidelines for variable consideration

For a variable to be considered for use in risk stratification, it should ideally:

- Exhibit a **direct, established and quantifiable link** with long term mortality or morbidity
- Be obtained from a **credible source** and be **verifiable**. Both variables directly obtained from a source and proxy variables may be considered. Self-reported variables and variables which may be manipulated should be avoided where possible
- Be **accessible**. Variables requiring specialist tests or which are obtained from specific devices are expected to have low data coverage and may not have significant value in enhancing overall discounts

Quantification of impact

For variables which meet these requirements, it is necessary to determine the impact of the specific variable, after allowing for all other variables already included. This is typically done through a multivariate predictive analytics exercise.



Background

Summary of Munich Re publications in health and wellness

Stratifying mortality risk using physical activity as measured by wearable sensors.

Conclusive link exists between sustained increased physical activity and long-term mortality and morbidity.

Heart Rate and Mortality

Resting Heart Rate effectively segments mortality across Age, Gender and BMI, even when factoring in steps and number of hours slept.

Sleep and mortality

Analyzing the effectiveness of daily sleep duration in stratifying mortality risk.

Strong evidence that sleep can effectively segment mortality risk even after controlling for age, gender, and smoking status.

Impacts on long term mortality from medical literature analysis

Relevant information for specific variables considered

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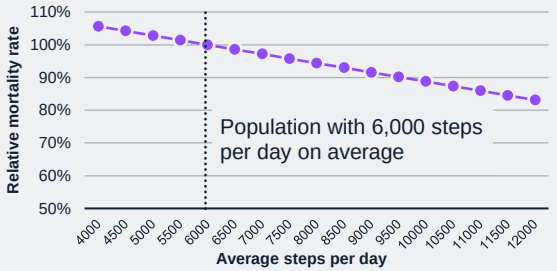
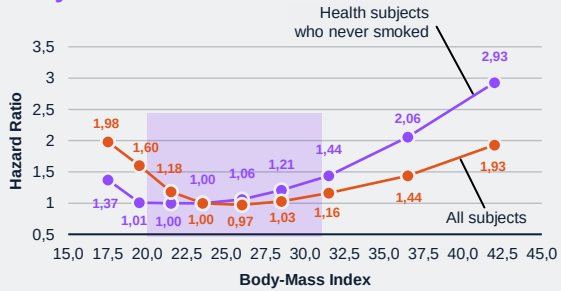
Steps per day



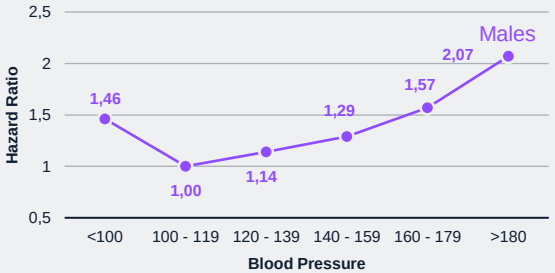
Derived from Munich Re Asia pricing basis

Body mass index



https://pubmed.ncbi.nlm.nih.gov/21121834/

Blood pressure

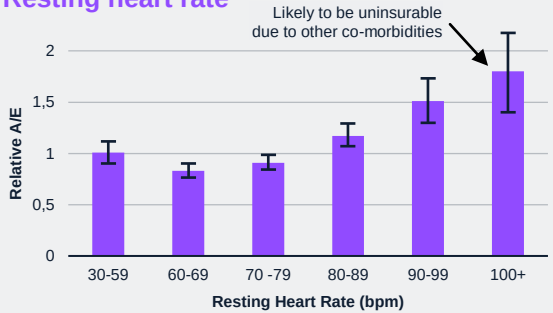


https://bmcpublichealth.biomedcentral.com/articles/10.1186/s12889-017-4965-5

Socioeconomic class

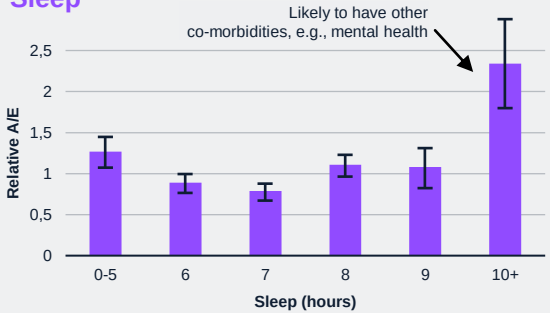
Typical rating factor differentials in South Africa

Resting heart rate



Stratifying mortality risk using physical activity as measured by wearable sensors

Sleep



Stratifying mortality risk using physical activity as measured by wearable sensors

Variable importance

For predicting mortality

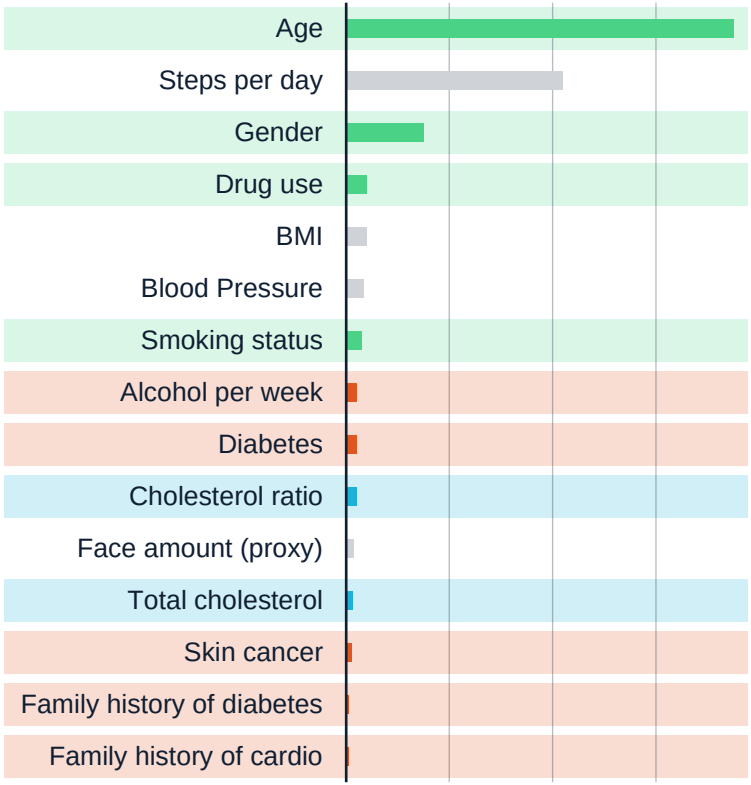
Munich Re's study

"Stratifying mortality risk using physical activity as measured by wearable sensors, 2017"

ranked the **importance** of model variables in predicting mortality as follows:

Variable assessment

- Variable is already included as a **rating factor**.
- Variable is already included in **application form**. Positive disclosure leads to loadings or exclusions.
- Variable requires **specialist medical tests** to obtain values.



Munich Re *Risk Score* ®

Munich Re *Risk Score* ® is calculated by combining UW data variables including age, gender, body mass index, physical activity (including steps), amongst others.

Munich Re *Risk Score* ® below 100 indicates better-than-average risk.

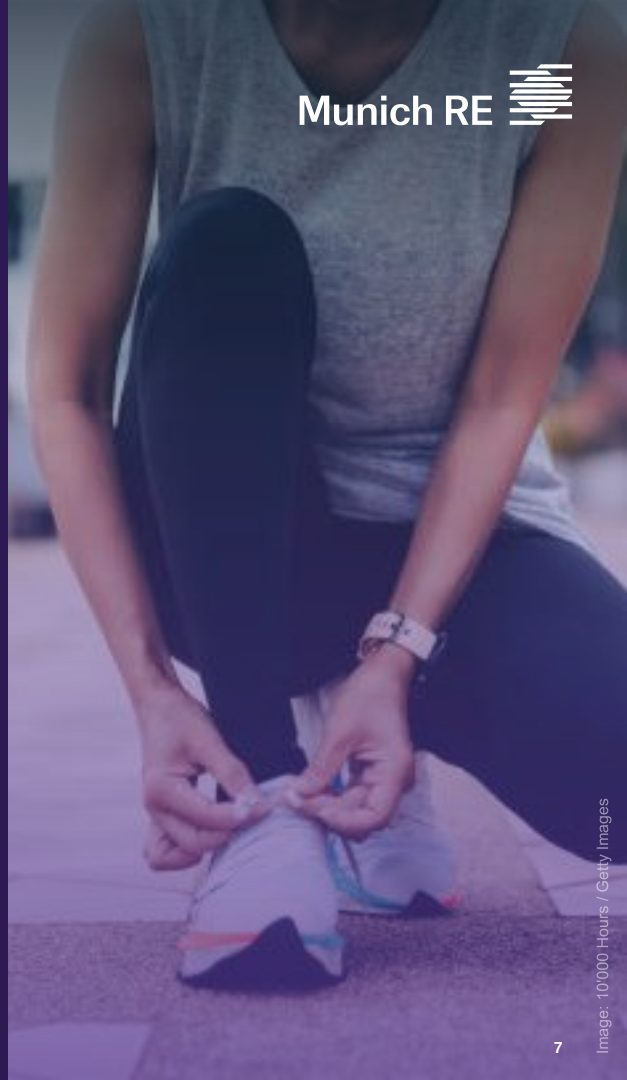
Munich Re *Risk Score* ® above 100 indicates worse-than-average risk.

Munich Re *Risk Score* ®

Premium discount

Biological age

Munich Re *Risk Score* ® can help insurers determine an applicant's holistic risk profile consistent with his/her Risk Score and an appropriate premium discount.



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Munich Re *Risk Score* ®

Recommended application as a business transformation tool

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Munich Re *Risk Score* ® (MRRS)

1 Risk pre-screening

- Available data is used to infer and replace existing underwriting questions, offer SIO (tailored questions to collect the missing information only)
- Non-traditional data sources used to augment underwriting

Pre- purchase

- Simpler underwriting
- Better pricing

2 Product and content differentiation

- Assist to provide bespoke solution based on a customer's profile, life event and life stage
- Tailored health and lifestyle contents based on identified gaps to drive better health and wellbeing

Pre- and Post- purchase

- Tailored product solution
- Cross and up sell campaigns

3 On-going dynamic pricing

- On-going risk screening drives dynamic premium adjustments
- Improve accuracy of premium rates charged through continuous customer engagement and future model enhancements based on client's actual experience

Post- purchase

- Improved pricing
- Motivate customers to improve their general health and wellbeing

Improved risk management and better claims experience through a healthier portfolio, improving overall profitability.

Contact us

Munich Re *Risk Score*®

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